Nuclear, Biological, and Chemical (NBC) Warfighting Modernization

Discussion

Threats emerging from the proliferation of NBC weapons have become one of today's foremost security challenges. Imbalances in conventional warfare capabilities have driven potential adversaries to find alternative means in the pursuit of a balance of power. The proliferation of Weapons of Mass Destruction (WMD) has created a complex, uncertain and volatile NBC environment. Marines must remain trained and equipped to protect the nation's security interests. The NBC threat has led the Marine Corps to aggressively develop and field NBC Defense capabilities and prepare to conduct other missions, such as, Consequence Management. These development efforts include editing NBC Defense Concepts and Doctrine, fielding state-of-the-art technologies and equipment, and upgrading NBC Defense Training Plans to support EMW. NBC Defense Capabilities are focused on three pillars: Protection, Contamination Avoidance, and Decontamination.

- ❍ The WMD Consequence Management Team is responsible for acquisition of equipment in support of Consequence Management Mission Areas, which include Reconnaissance; Decontamination; Force Protection; Medical; and Command, Coordination, Communication, Computers, Intelligence, and Interoperability (C4I2). This is accomplished through the evaluation and acceptance of proven commercial and non-development technologies, cooperation with DoD technology development assets, and operational testing and fielding. To date, the WMD Consequence Management Team has successfully fielded over sixty items of equipment to support the Marine Corps WMD Consequence Management capability. During fielding, the WMD Consequence Management Team provided training sustainment and the implementation of comprehensive logistical support to the Chemical/Biological Incident Response Force (CBIRF) Consequence Management capability and MEU(SOC) Enhanced NBC (E-NBC) Capability Sets.
- ❍ Individual and Collective protection provide the warfighter life sustaining capabilities and the ability to continue operational activities in the event that units are forced to occupy or traverse

NBC contaminated environments. Individual protection includes protective masks, hoods, suits, boots, and gloves exclusively designed for ground combat and air combat units. Collective protection consists of two general categories: stand-alone shelters and integrated systems that provide a contamination-free, environmentally controlled surrounding. Collective protection examples include mobile and fixed command posts, medical facilities, rest and relief shelters, buildings/fixed sites, vehicles, aircraft, and ships. The Marine Corps is pursuing and fielding technologies that provide improved protection, better mobility in Mission Oriented Protective Postures (MOPP), vision and voice capabilities, and reduced heat stress from current Individual Protective Equipment (IPE). Evaluation of technologies for collective protection in contaminated areas to improve filtering, ventilation, reduced weight, volume, costs, and other resource demands are being conducted.

- Contamination Avoidance includes NBC reconnaissance, detection, identification, warning, and reporting. Early and reliable detection and warning is fundamental to avoiding chemical and biological agent contamination. Early detection and warning provide the MAGTF Commander with situational awareness of NBC conditions throughout the battlespace. The ultimate goal is to provide the commander with a real-time picture of the invisible hazards associated with NBC Defense. Contamination Avoidance takes advantage of Information Age technology in developing our doctrine. Contamination Avoidance integrates detector (point and standoff), identification of the agent(s), sample collection and storage, (vapor, liquid, and solid) intelligence (collection and transmission), operations, weather, and unit location networks to provide all units and elements with the requisite information to "paint" the NBC situation. The Marine Corps is aggressively pursuing technology advances in chemical and biological standoff detection, remote and early warning detection, sensor miniaturization, and improved detection sensitivity.
- Decontamination systems provide the force a regeneration, restoration, and resumption of operations capability in the event that contamination cannot be avoided. Personnel and equipment must be decontaminated in order to reduce and/or eliminate hazards after chemical and biological agent employment and

contact. Modular decontamination systems with engineering improvements have been fielded and future systems are being developed to include more effective personnel decontamination and fixed site, large equipment, and sensitive equipment decontamination. The Marine Corps is evaluating the physical removal of contamination on personnel, equipment, fixed sites, and sensitive equipment, permitting forces to resume operations. Additional considerations include reducing resource demands, developing effective concepts and doctrine, and efficient organization.

Marine Corps Position

The Marine Corps Combat and Materiel Developers are leveraging the NBC Defense Program Development effort and commercial and emerging technologies to field NBC Defense capabilities to support the Marine Corps. Effective operational concepts and doctrine, validated by realistic training, remain fundamental to defending against NBC threats.